

REMARKS

The present amendment is being submitted prior to the issuance of a first office action in the present application.

At the outset applicants wish to thank the Examiner for taking the time to meet with the applicants' representative to discuss this case. Applicants have amended the claims in an effort to incorporate the distinguishing features discussed during the interview.

Applicants respectfully submit that the claims now on file differ essentially and in an unobvious, highly advantageous manner from the methods and constructions disclosed in the references.

Applicants further respectfully submit that neither Pleschiutschnigg nor Coassin, taken either alone or in combination do not teach or suggest a casting installation having supporting and guiding rollers that include linear split rollers which are arranged at an angle to one another so as to form the caliber of the slab, with the plurality of the rollers lying a plane perpendicular to a flow direction through the mold. Neither of the references provides any teaching of such multiple rollers.

In view of these considerations it is respectfully submitted that claims 11-20 are distinguishable over the prior art of record and the rejection thereof under 35 USC 103(a) is overcome and should be withdrawn.

Favorable action on the present application is respectfully requested.

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

COHEN, PONTANI, LIEBERMAN & PAVANE

By: 

Klaus P. Stoffel

Reg. No. 31,668

551 Fifth Avenue, Suite 1210

New York, N.Y. 10176

(212) 687-2770

October 30, 2002

In the Claims:

11. (Amended) A process for producing a thin slab having broad faces with a predetermined convexity in a continuous casting installation, in which an immersion nozzle protrudes into a mold composed of broad and narrow faces followed by a strand guiding means for guiding the slab which comprises a strand shell surrounding a liquid sump, said process comprising the steps of:

a) forming broad faces of the strand shell to have planar surfaces in a region of the immersion nozzle using linear central rollers, and simultaneously be parallel with respect to their contour lines;

b) outside a shadow region of the immersion nozzle, shaping said broad faces of the strand shell with planar surfaces of linear side rollers that taper conically toward the narrow faces, which side rollers are at an angle to the linear central rollers, a plurality of the rollers being arranged in a plane perpendicular to a flow direction through the mold;

c) in a strand casting direction, feeding parts of the slab broad faces shaped with planar surfaces conically to each other up to 40 to 60% of the mold length to such a degree that lateral edges of the faces adapt themselves to ends of the planar parts of the slab broad faces tapering conically with respect to narrow faces of the slab;

d) joining tapered connecting pieces with the central parts of the slab broad faces with respective planar-surface edge parts of the slab broad faces outside the shadow region of the immersion nozzle; and

e) subsequently, in a mouth region and after leaving the mold, maintaining convexity formed by in each case three planar surface parts of the broad faces of the strand shell constant in its form as far as a lowest point of a liquid crater of the slab.

14. (Amended) A continuous casting installation for producing a thin slab, comprising:

a laterally adjustable mold, the mold having broad side parts, narrow side parts, a large crowned cross-section on a charging side and a cross-section, opposite the crowned

cross-section, on a strand outlet side which is smaller than the crowned cross-section and identically crowned in a central region;

an immersion nozzle that protrudes into the mold, the immersion nozzle having a mouth with a maximum thickness (d) corresponding to $d = 0.3 \text{ to } 0.5 \times D_E$, where D_E is a distance between the mold broad face parts in a charging region, the broad-side parts having at least in a region of the immersion nozzle central parts which are arranged parallel to one another according to their contour lines, the broad-side parts being formed, at least in an adjusting region of the narrow-side parts, as planar side surfaces, the planar side surfaces being movably arranged so that they move conically toward each other in a direction of the narrow-side parts, the central part being connected to the planar-surface side surfaces by transitional parts, the transitional parts tapering toward each other and having a tip that ends at a distance (a), measured from an upper edge of the mold, with $a = 0.5 \text{ to } 0.8 \times L$, where L = the length of the mold; and

[pairs] a plurality of supporting and guiding rollers which follow the mold and have a caliber adapted to an emerging crowned strand, the supporting and guiding rollers having a contour which corresponds to the central part and the side parts of the mold broad faces in a region of a mouth of the mold, the supporting and guiding rollers including linear split rollers, the split rollers each having a linear surface in a plane tangent to a circumference of the roller, the split rollers including central rollers and side rollers arranged so that axes of the central rollers and the side rollers are at an angle to one another whereby the caliber is formed by a plurality of the rollers lying in a plane perpendicular to a flow direction through the mold.

18. (Amended) A continuous casting installation as defined in claim 14, wherein the [supporting and guiding rollers are] split rollers [having] have bearings provided in a region of the central part.